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SUGHRUE MION, PLLC				
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SUITE 800				
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EXAMINER				
CALANDRA, ANTHONY J				
ART UNIT		PAPER NUMBER		
1791				
NOTIFICATION DATE		DELIVERY MODE		
10/06/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/583,711

**Applicant(s)**

GRONQVIST ET AL.

**Examiner**

ANTHONY J. CALANDRA

**Art Unit**

1791

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 July 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2, 4-11, 13, 14, 16-22, 24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-11, 13-14, 16-22 and 24-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Detailed Office Action***

The communication dated 7/29/2010 has been entered and fully considered.

Claim 3, 12, 15, and 23 have been canceled. Claims 1, 13, and 16-17 have been amended. Claims 1-2, 4-11, 13-14, 16-22, and 24-25 are currently pending.

***Response to Arguments***

***Claim Objections***

The examiner maintains the claim objections. The dependent claims appear to broaden the scope of the independent claims. For example claim 1 limits the signaling agents to the following species "Acid Green 41, AlizarinRed S, Alizarin Yellow GG, Bromocresol Purple, Celestine Blue, o-cresolphthalein, Cresol Red, Fluorescein, Gallocyanine, Hematoxylin, 4-methylesculetin, 9-phenyl-2,3,7-trihydroxy-6-fluorone, Plasmocorinth B, Purpurin, Quinalizarin, Thymolphthalein, Tiron, Xylenol Blue and Xylenol Orange".

The applicant then broadens the claim language by stating that the signaling agent is a metallic particle in claim 5.

In claim 6 the applicant broadens the claim by stating that radioactive or inorganic particles are the signaling agents.

In claims 8, 10, and 11 it is not clear if each of the disclosed functional groups are present in the signaling agents as disclosed. If not then the claims broaden the independent claim.

*Art rejections*

***Applicants argue against CHANDRA and state that CHANDRA does not disclose or suggest a chemical oxidizing agent.***

Enzymes are chemicals and CHANDRA considers them as such [pg. 101 section 11.2]. Therefore considering enzymes chemicals is a reasonable interpretation of the claims given no explicit definition in the specification otherwise. If the applicant wants to exclude enzymes then a negative limitation should be added.

Furthermore, CHANDRA states that prior to treatment with enzymes the pulp is fluffed and dried. It is implicit that the drying is completed in the air. The pulp which has been dried in air and fluffed naturally will bring some air into the reaction bag. The examiner takes official notice that air contains oxygen. Oxygen is one of the chemical oxidizing agents claimed by the applicant. The examiner has argued that drying/fluffing in air is implicit. Alternatively, it would be obvious to the person of ordinary skill in the art to perform fluffing and drying in air especially given no explicit teaching otherwise by CHANDRA.

***Applicant argues that the peroxide of von Raven does not act as the oxidizing agent and that the fluorescein of von Raven does not act as a signaling agent of the present invention.***

The applicant makes said statement but does not provide any evidence or reasoning why said statement may be true. Fluorescein is the same signaling agent as claimed in the Markush group of instant claims 1 and 2. Furthermore, peroxide is one of the chemical oxidizing agents claimed in dependent claims 16 and 17.

***Claim Objections***

1. Claims 5, 6, 8, 10, and 11 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form.

In claims 5 and 6, the applicant claims properties which the disclosed compounds do not appear to have including metallic particles, pigments, inorganic, radioactive (other than background radiation) thus broadening the claim.

In claims 8, 10, and 11, the applicant claims groups which do not appear to be part of the compounds thus broadening the claim

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1-2, 4-11, 16-22, 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,482,514 von RAVEN, hereinafter von RAVEN.

As for claim 1, von RAVEN discloses treating lignocellulose pulp [column 1 lines 39-40] with peroxide [column 5 table 3 lines 24-35] and one or more photoactivators including fluorescein [column 2 lines 25-30].

As for claim 2, von RAVEN teaches one or more photoactivators including methylene blue and fluorescein [column 2 lines 25-30]. Methylene blue additionally comprises a phenolic

group which can bind to lignocellulose. As such methylene blue can be interpreted as a modifying agent and fluorescein as a signaling agent.

As for claims 16, 17, 18, 22, and 25 von RAVEN discloses peroxide [column 5 table 3 lines 24-35] and discloses adding atmospheric oxygen [column 1 lines 59-67].

As for claims 4-7, 9, and 21 von RAVEN discloses the fluorescent compound fluorescein.

As for claim 8, 10 and 11 fluorescein has both carboxy and hydroxy groups.

As for claim 19 and 24 von RAVEN discloses 20% consistency [column 7 lines 3-10].

As for claim 20, von RAVEN discloses the temperature range of 10 to 90 degrees C which falls within the instant claimed range [column 1 line 65].

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 4-11, 13-14, 17-19, 20, and 24-25 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over *Chemo-Enzymatic Modification of High-Kappa Kraft Pulps with Laccase* by Chandra et al., hereinafter CHANDRA.

As for claim 1, CHANDRA discloses treating a high lignin pulp with [pg 193 Pulp] with an oxidizer, laccase, and a signaling agent Celestine Blue [pg. 193 Pulp treatment]. Enzymes are chemicals and CHANDRA considers them as such [pg. 101 section 11.2].

In addition to the above, CHANDRA states that prior to treatment with enzymes the pulp is fluffed and dried. It is implicit that the drying is completed in the air. The pulp which has been dried in air and fluffed naturally will bring some air into the reaction bag. The examiner takes official notice that air contains oxygen. Oxygen is one of the chemical oxidizing agents claimed by the applicant. The examiner has argued that drying/fluffing *in air* is implicit. Should the applicant not be convinced then alternatively, it would be obvious to the person of ordinary skill in the art to perform fluffing and drying in air especially given no explicit teaching otherwise by CHANDRA.

As for claim 4, the Celestine blue is bonded to the pulp and therefore it has been activated.

As for claims 5, 6, and 9, Celestine blue increases the nitrogen content [pg. 198 and Figure 70] and changed the zeta potential, i.e. conductivity [pg. 199 Figure 72] and thus can be considered security agents. Celestine blue additionally changed colors upon the reaction with laccase [pg. 196 lines 1-3].

As for claims 7, 8, 10 and 11, Celestine blue has more than one functional site including but not limited to hydroxyl, amines and amides [pg. 194 Figure 68].

As for claims 13, and 14, CHANDRA discloses the enzyme laccase [pg. 193 Pulp treatment].

As for claims 17, 18, and 25 CHANDRA states that prior to treatment with enzymes the pulp is fluffed and dried. It is implicit that the drying is completed in the air. The pulp which has been dried in air and fluffed naturally will bring some air into the reaction bag. The examiner takes official notice that air contains oxygen. Oxygen is one of the chemical oxidizing agents claimed by the applicant. The examiner has argued that drying in air is implicit. Alternatively, it would be obvious to the person of ordinary skill in the art to perform fluffing and drying in air especially given no explicit teaching otherwise by CHANDRA.

As for claim 19 and 24, the treatment is carried out at a consistency of 15% which falls within the instant claimed range [pg. 193 pulp treatment].

As for claim 20, the reaction temperature is 45 degrees C which falls within the instant claimed range [pg. 193 pulp treatment].



***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. CALANDRA whose telephone number is (571) 270-5124. The examiner can normally be reached on Monday through Thursday, 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anthony J Calandra/  
Examiner, Art Unit 1791

/Matthew J. Daniels/  
Supervisory Patent Examiner, Art Unit 1791